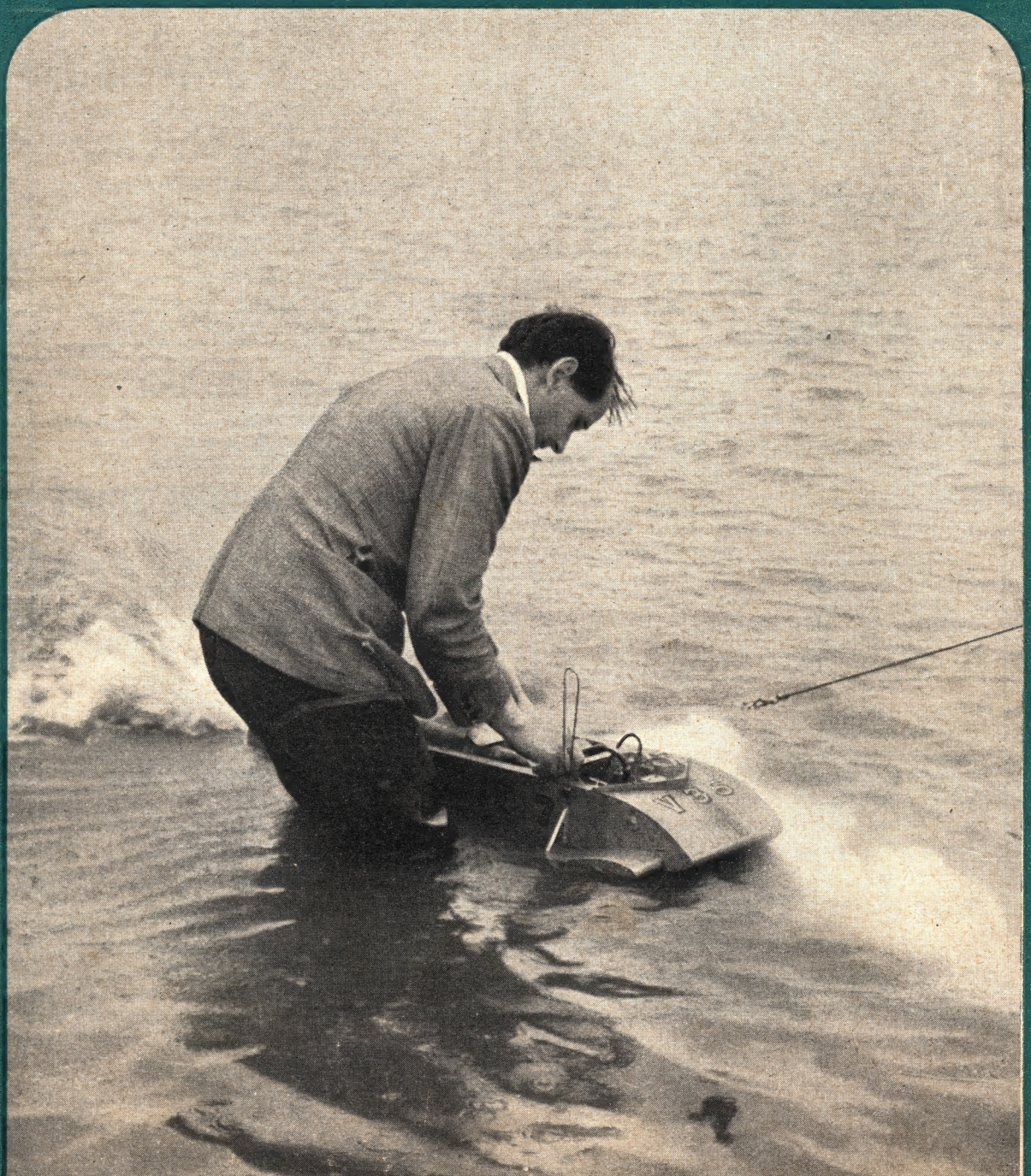
A PERCIVAL MARSHALL PUBLICATION

MODEL SHIPS AND POWER BOATS

FEBRUARY 1951 ONE SHILLING



Model Ships and Power Boats

INCORPORATING *Ships and Ship Models*

EDITED BY EDWARD BOWNESS

VOL III NO 38 FEBRUARY 1951

Contents

The Ship's Log

OUR FUTURE PLANS

In this, the concluding issue of our third volume, we would like to give our readers some idea of our plans for the future. So far we have had a few letters in response to the comments on the contents of our magazine, which we published in our last issue. These are receiving careful consideration. One writer charged us with ignoring completely the claims of those interested in paddle steamers as prototypes for models. It was rather a coincidence that we had already arranged for the photo of a paddle steamer on the cover of our January issue, and a double-page spread of close-up photographs showing various details of them for the present issue. We are also preparing for early publication as a series, a very complete set of drawings with text describing the construction of a model of the old Clyde paddle steamer *Glen Sannox* to the scale of $\frac{1}{4}$ in. = 1 ft. For the maker of miniature models of ships we are commencing next month a series of articles by Donald McNarry, who is without question one of the best miniaturists in the country. For a number of years past he has won high awards for his models in the "M.E." Exhibitions and his work is recognised as being of the very highest standard. The series refers more particularly to the methods Mr. McNarry employed in making his water-line models of the Union Castle Liner *Stirling Castle* and the Cunard White Star Liner *Queen Elizabeth*. Mr. Westbury is continuing his articles on matters relating to power boats and we have articles awaiting publication on model yachting, working model steamers, sailing ships and historical ships. We are always ready to answer queries on ship modelling, and to publish any that may be of general interest.

OUR COVER PICTURE

One of the best-known and also one of the most tireless investigators in the realm of model flash steam racing boats is Mr. A. W. Cockman of the Victoria Club, whose series of boats under the name *Ifit* have made model power boat history, and sometimes almost geography as well. He is seen here starting the latest of these boats *Ifit* 7 which is, as yet, still in the experimental stage, but has already distinguished itself by some excellent runs and thereby contributed to the steady progress made by this series of boats since he first started building them, nearly twenty years ago. *Ifit* 7 attained a speed of 52.45 m.p.h. in the 1950 Model Engineer Speedboat Competition which we believe to be the highest figure yet attained by a flash steam model power boat in this country.

INDEX TO VOLUME III

Owing to production difficulties and other causes over which we have no control we find it has been impossible to include the index for this volume in this issue. We will, however, be able to include it in the March issue. Readers who bind their copies can then remove their index from the March issue and have it bound in its correct place in Volume III.

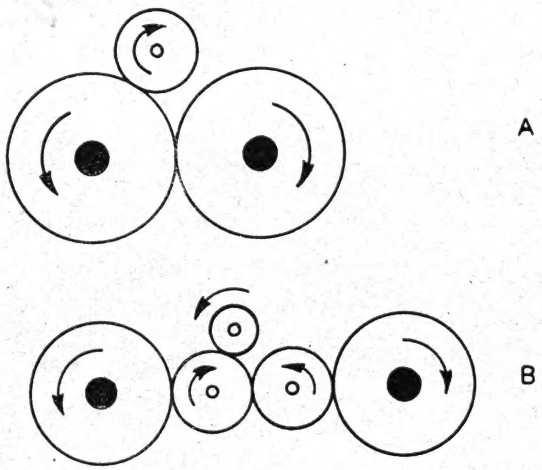
A CORRECTION

We regret owing to a printer's error the name of the ship on the cover of our last issue was given as *Empress of India*. It should of course have been *Emperor of India*.

*MODEL POWER BOAT TOPICS

by Edgar T. Westbury

IN the course of a recent discussion on model power boats, I was questioned regarding the attitude of clubs towards the raw beginner who turns up at the pond with his first crude effort. It was suggested that in some cases beginners had been cold-shouldered by the more experienced members, or had encountered merciless criticism, which tended to discourage them instead of helping them to improve upon their work. My friends in the model power boat clubs would, I am sure, refute this suggestion most emphatically, and I can assure readers that it does not represent the true state of affairs in any club I have encountered. On the contrary, I have always been much impressed by the helpful spirit of club members, and the readiness of the old hands to advise those with less experience.



Arrangements of gearing for driving twin screws from one engine : A—close-spaced shafts ; B—widely-spaced shafts

It is true that there have been individuals who, on the strength of some brief success in the model power boat world, have gone all highbrow and upstage, despising the puny efforts of those less skilled —or perhaps only less lucky—than themselves. But these are very much in the minority, and usually (in common with all meteors and rockets) come down to earth in due course. One also encounters a good deal of rough and satirical wit at the pond side, but this is rarely more than good-natured chaff, more often directed against the veteran than the tyro. It is, of course, necessary to develop a fairly tough hide in all realms where human beings compete in any form of sport or pastime, and the hyper-sensitive person who takes this sort of thing too seriously is not likely to have a really happy time.

*Continued from January issue, page 215

ENCOURAGING THE BEGINNER

It has been suggested that clubs should have a special section for beginners, with provision for instructing them on how to build simple boats well within their capacity, and also special competitions arranged for their benefit. Something of this kind has been attempted several times in the past, but such schemes are but rarely successful, mainly for psychological reasons. The term "beginner" is often interpreted as meaning much the same as "juvenile," but in model engineering, beginners are often of quite mature years—indeed, many of them are persons who have retired after a long career of more prosaic activity—and few men like to be relegated to a kind of "infants' class." Moreover, I have yet to meet the beginner who has any desire to build the simple and elementary types of models recommended by well-intentioned instructors ; all the beginners I know have ambitions to build world-beaters at their first attempt, and some of their schemes are so bold as to make the most experienced veterans gasp !

Speaking of my own early attempts at model power boat construction, the advice freely given to me by fellow club members was, if anything, an "embarrassment of riches"—especially as no two people gave me the same advice, and the result was often more confusing than otherwise. This sort of thing, of course, is by no means confined to model power boat matters—have you ever had to endure the conflicting advice of highly experienced amateur gardeners on your early attempts to grow roses or tomatoes ?

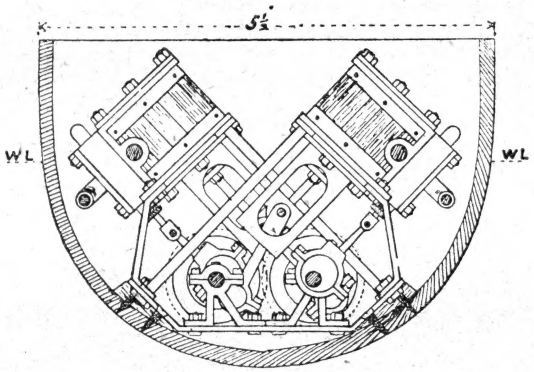
GEARING FOR TWIN PROPELLERS

Several queries have been received on this subject ; in most cases they refer to methods of driving the two propellers from one engine, but in others the problem is that of synchronising two complete power plants so that they run at exactly the same speed. For the former purpose, the usual arrangement is to use a group of three spur gears, two of which are mounted on shafts coupled to the propeller shaft, and are meshed together, while the third, the shaft of which is coupled to the engine, meshes into one only of the other two gears, as indicated in the sketch. This drives the two propellers in opposite directions, and thus eliminates torque reaction, so that, assuming the propellers to be properly matched, a boat so driven will steer accurately at any speed, instead of being deflected off its course to a varying extent, according to the torque, as occurs with a single propeller.

With this arrangement, the engine shaft must be set at a different level to the propeller shafts, and also offset from the centre, so that it meshes with only *one* of the driven gears ; if it meshed with both simultaneously, the gear train would lock. The

difference of shaft level is often an advantage rather than otherwise, as it allows the propeller shafts to be kept at a low angle, while giving extra room for the engine flywheel ; the small amount of offset does not usually do any harm, and the slight deviation from exact symmetry is hardly perceptible. It is usually possible to arrange suitable sizes of gears to locate the shafts the required distance apart to suit the propeller shafts ; but if it is desired to increase the distance between them, while keeping the gears small in diameter, a train of four spur gears may be used, geared together, with the engine shaft gear meshing into any one of them. Suitable spur gears are obtainable in various sizes from model dealers, including Messrs. Bonds' o' Euston Road, who have a very wide selection ; but quite a lot of gears of high quality are available on the surplus market at very low prices. It is usual to arrange for some reduction of speed in the propeller gearing, in order to enable both the engine and the propeller to run at their most efficient speeds, but equal-ratio gears are quite in order, and do not necessarily lower efficiency to any pronounced extent.

While some constructors are quite content to mount the gears between motion-plates like those of a clock, and leave them exposed, it is an obvious advantage to enclose them in a neat gearbox and run them in an oil bath, which incidentally can generally be relied upon to keep the bearings lubricated as well as the gears. The correct mesh

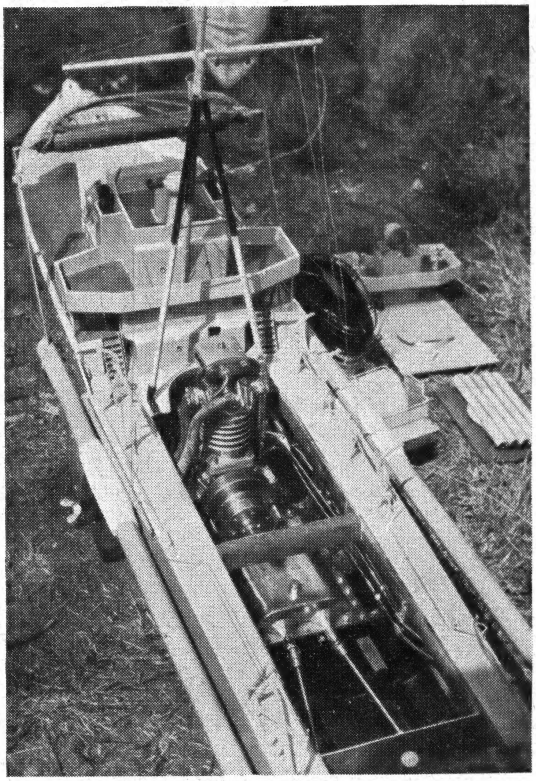


Direct drive of twin propellers by two diagonal engines geared together

adjustment of the gears is most important, and the bearings must be set exactly the right distance apart to ensure this, or some form of adjustment provided, such as eccentric bushes. If gears tend to run somewhat roughly when first fitted, or show local tight spots, it is permissible to lap the teeth by running them in with a *mild* abrasive such as metal polish or plate powder. Brass gears are suitable for moderate duty, but for very high stress, it is better to use bronze or steel, and to mesh dissimilar metals together where possible.

SPLAYED SHAFTS

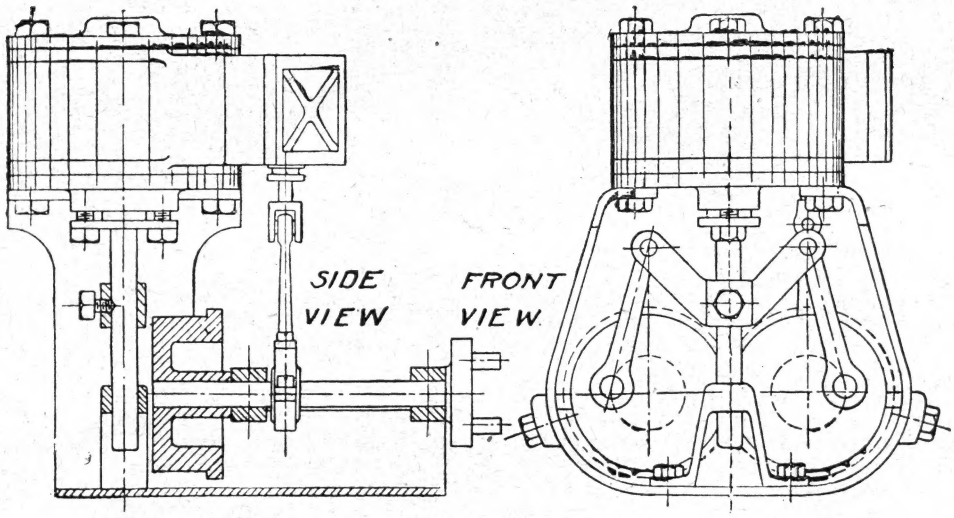
A querist who proposes to use splayed propeller shafts has considered it necessary to splay the gear



An example of a model destroyer having a petrol engine driving twin propeller shafts through an enclosed gearbox. Built by Mr. Crofts

shafts as well, and has enquired where to obtain gears with a face angle of 5 degrees to the axis. It is extremely doubtful whether such gears could be obtained, and while it is quite possible to cut the teeth to this angle, I regard it as unnecessary, and indeed of dubious advantage. Splayed shafts are rather the rule than the exception in twin-screw boats, and they can be driven quite effectively by straight spur gears, if universal joints are used to couple the gear shafts to the propeller shafts. The simple ball and pin, in conjunction with a slotted socket, which I have described in previous articles, is quite suitable for this purpose, provided that it only has to cope with moderate angles—say, about 10 degrees included angle between the two shafts, which is ample in most cases. Some form of thrust bearing should be provided on each shaft so that no end thrust is transmitted to the gear shafts ; the engine should also be flexibly coupled to isolate thrust or side stress.

Some constructors have suggested the use of friction gearing for propeller shaft drive, but while this is practicable in some cases, it is rarely as efficient as toothed gearing, and the torque which can be transmitted is limited by the area of friction surface which can be *effectively* employed—usually very small in the case of a transmission system for a model boat. I have used friction gearing quite a



A twin crankshaft single-cylinder steam engine for driving two propellers

lot for certain purposes, and it is most effective where there is plenty of room to design for the highest possible efficiency ; but I see little point in its use where toothed gears are so simple and convenient.

COUPLING TWO ENGINES

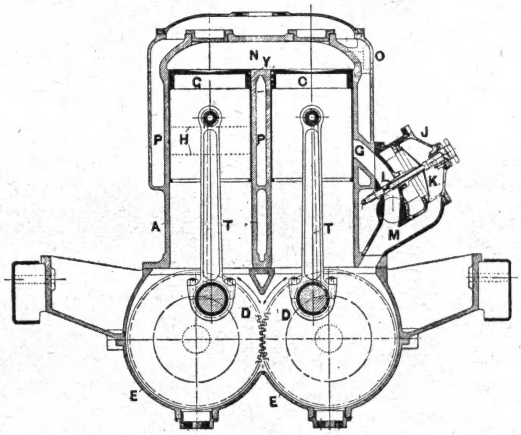
It is not very often that two complete steam or i.c. engines are used in a model boat, but twin electric motors are quite common, and it is often found very desirable to adopt some method of synchronising them so that one does not do all the work while the other remains a " passenger "—such a condition would entirely defeat the purpose of using twin propellers. The most obvious, and often the simplest, practical method is to gear the motors together, using equal-sized gears large enough to mesh together when the motors are mounted in their proper location. If the distance between them is too great for this, a train of four gears may be used, the size of the intermediate idlers being immaterial, so long as the gears on the motor shafts are the same size.

As the torque involved in synchronising the motors is quite light—or should be if they are about equal in power—the gears have very little work to do in this case. The desired result is sometimes obtained by fitting vee pulleys on the motor shafts and using a belt-drive such as a rubber band or spiral spring ; note that the belt must be crossed to enable the motors to run in opposite directions. Another effective device would be a friction drive, using rubber-tyred pulleys in contact with each other ; this is a job well within the torque capacity of such a drive.

It may be remarked that an equally important matter, apart from ensuring that the two propellers run at the same speed, is that they should be carefully matched in pitch and blade area, to produce exactly the same propulsive efficiency.

ENGINES FOR DRIVING TWIN SCREWS

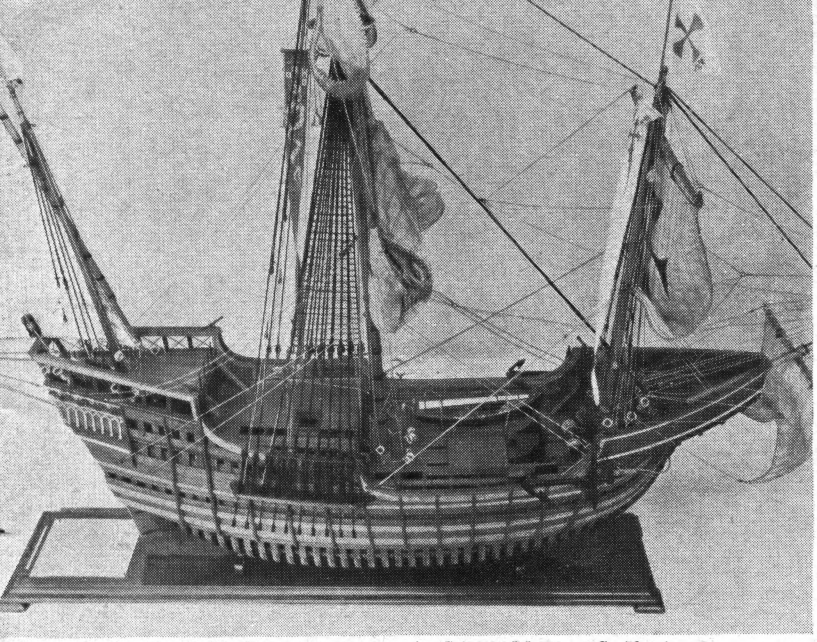
A good deal of ingenuity has been devoted, in the past, to the design of engines specially intended for driving twin-screw boats, with the minimum of gearing or other complication. One such engine was described in my series of articles on the history of model power boats ; another, equally ingenious in design, and having somewhat similar features, but eliminating the rather inefficient slide cranks, is



An example of a " split-single " two-stroke engine with geared crankshafts, as used in an early type of motor car

shown here. The two crankshafts are of the overhung type, and the crank discs, which serve as flywheels, have teeth on their outer edges which mesh them together. As the engine has only one cylinder, a single slide valve serves for steam distribution, and may be driven by the usual motion, from an eccentric mounted on either of the two shafts.

Continued on page 233



Crown copyright, from an exhibit in the Science Museum, S. Kensington

★A Model of an EARLY XVI CENTURY SPANISH CARRACK

by

A. E. Field

Mem. Soc. Naut. Res.

CLEATS AND RINGBOLTS. (See Fig. 9)

The cleats were easily made by soldering small pieces of bent wire to the flat heads of small brass nails.

The ring bolts were bent up with fine round-nosed pliers from " Lill " pins.

SHIPS BOAT

These (I say " these " because I actually made two—the first being transom sterned like the one shown on the *Santa Maria* in the Science Museum. This I subsequently scrapped as I could not find evidence of that type of boat being used at that period) were made on the " bread and butter " principle. The thin layers of sycamore were cut to outside shape and the inside cut away as far as possible with the fretsaw. The layers were glued together and allowed to dry under pressure. The outside was filed and sandpapered to shape, using cardboard templates to check the contour on both sides at four stations. The inside was cleaned up with a small " riffler " file and thinned down until it was transparent when held up to the light. It was then cut through from stem to stern with a fretsaw, supporting it on suitable blocks during the process. This was the most " ticklish " part of the job and necessitated patience and great care to avoid breakage. The keel with stem and stern post was cut out in one piece from boxwood and glued in between the two halves. The ribs and stringers were cut from an old visiting card and glued into place. The floor boards and thwarts were made from boxwood stringing and the gunwale from sycamore veneer cut to shape and glued in position. Thole pins and ring bolts were added and the outside of the hull stained with Vandyck crystals dissolved in water. The outside and inside were then French polished—the inside being brushed on.

The oars were filed up from boxwood stringing and require no description.

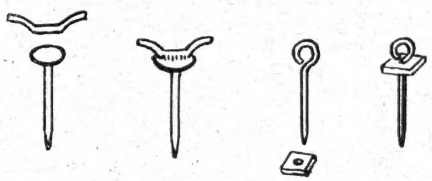
**Continued from January issue, page 212.*

MASTS AND SPARS

These were turned up in the lathe and sandpapered to the required thickness and taper. The mainyard and lateen yard were made in two pieces and lashed together as was the custom of the period. The wooldings of the main mast were made as in actual practice by binding the mast with suitable sized rope. The depth of each woolding is slightly greater than half the mast diameter and the rope would be about 2½ in. circumference in the actual ship. The masts and spars in the model were left natural colour and french polished.

THE TOP

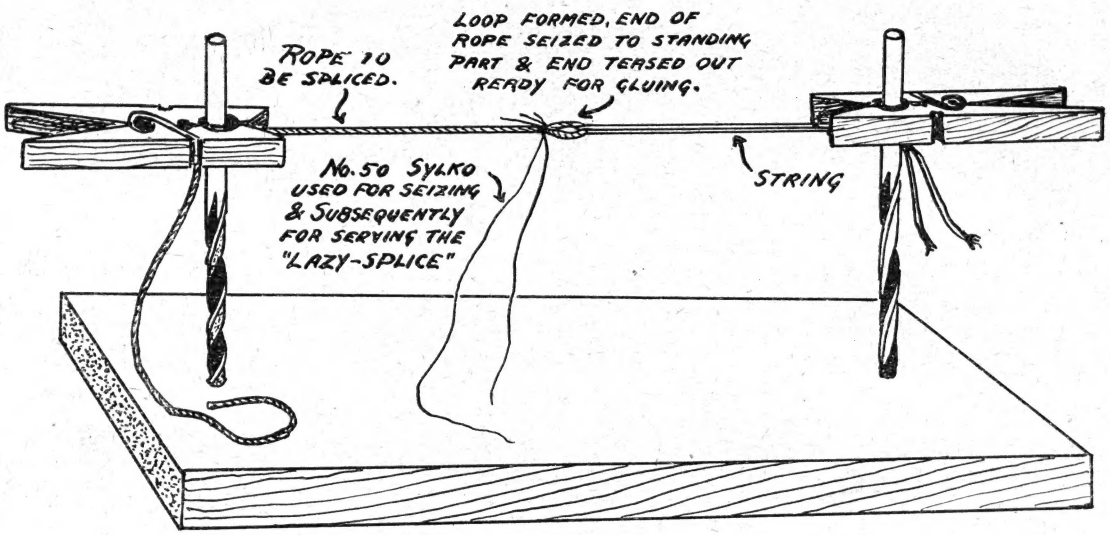
This was turned from mahogany, a recess being made on the inside to house the " panelling." The shaped holes in the side to form the panels were cut out with a fretsaw. The lining (or panelling) was cut from a piece of Bristol board to which I gummed some red paper. This was glued in the recess on the inside of the top and formed the panels, which, I believe, are typical of the period.



MAKING CLEATS & RINGBOLTS.

BLOCKS

I do not know of any " short cut " or easy method of block making. Those on my model (and there were over 140 of various types and sizes) were made from strips of boxwood and holly by filing them to shape, drilling and then slotting them as



METHOD USED FOR MAKING "LAZY-SPLICES".

necessary with fretsaw and needle files. The sheaves (which were turned up, grooved and drilled in the lathe from brass rod) were fitted (on a spindle of brass wire) in the block before parting off the block from the strip. This method made it easy to hold the block while actually shaping and making it. Holly was found preferable to boxwood as it finished quite as cleanly, but was not so liable to split when being worked upon.

DEADEYES

I made these by planing up a piece of boxwood until its section was the heart shape of the deadeye. It was then mounted off-centre in the 4-jaw chuck and the hole drilled in the lathe. The grooving was carried out by revolving the " stick " over the small circular saw. As each deadeye was grooved it was cut off the stick for final trimming up, chamfering the hole and rounding off the edges, etc. The deadeyes were painted black. It will be realised that the heart-shaped deadeyes of this period entail considerably more work than the round deadeyes of later years.

RIGGING

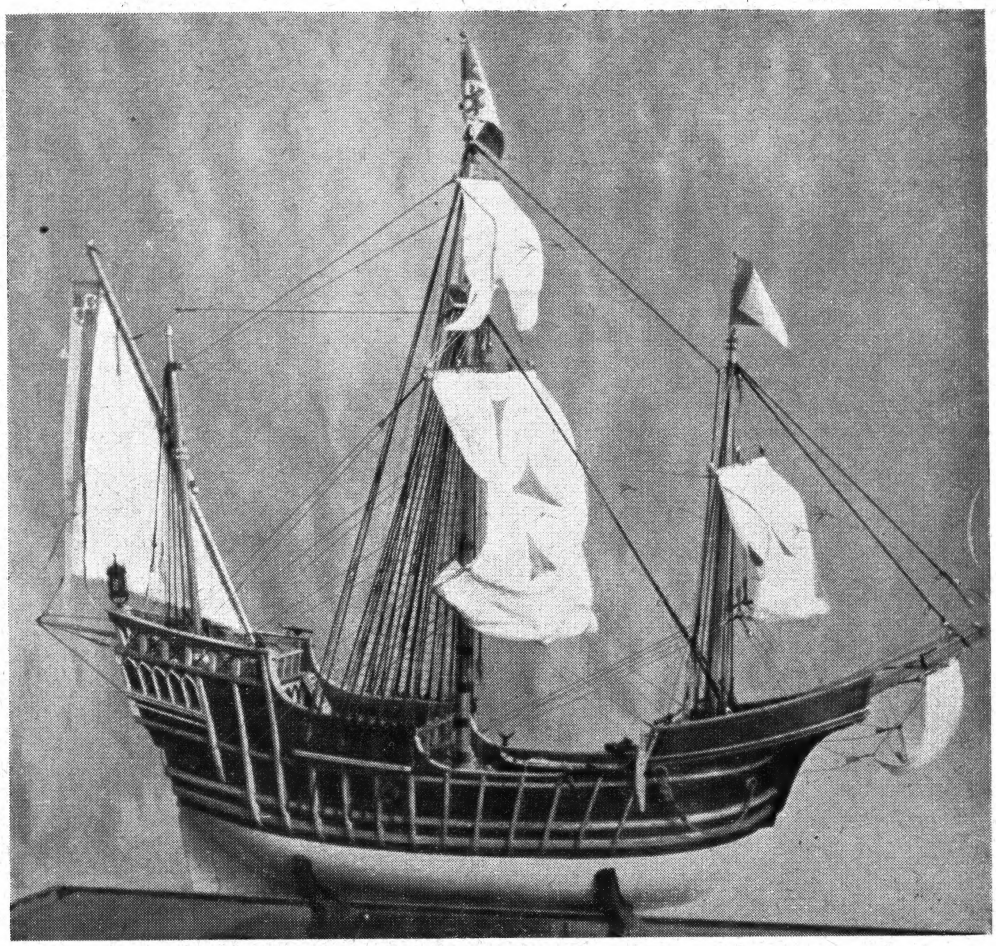
It was originally intended to use surgical silk twist for this and I had actually set up all the standing rigging and had commenced to " rattle " down the shrouds when it was found that these were disintegrating due possibly to the action of the dye used to colour the silk. This unfortunate state of affairs necessitated stripping off all the rigging and starting again.

In order to get over the difficulty of dyeing the miniature rope, I made up a rope-making " jenny " similar to the one described in *The Model Engineer* Vol. 89, No. 2221, 2-12-43, and also in *Ship Modelling Hints and Tips* by " Jason ". This is an excellent little machine and so simple to use after a little practice that my " rope " was made up by my daughter, aged 11. I found the best material to use was Dewhursts, sizes 40 and 50, colours, black, fawn and sandalwood. For stays and anchor cable, I found black and fawn shoemakers' thread excellent. The running rigging was given a rub with beeswax to eliminate the slight " fluffiness."

The ratlines were correctly clove-hitched to the shrouds. The knots on the first and last shrouds were touched with seccotine to prevent them coming undone.

It was possible to splice the larger ropes, but for the smaller ones I resorted to a " dodge." The end of the rope to be spliced was seized to the standing part with two turns of No. 50 nigger brown Sylko, but the ends which were purposely left a few inches long, were not cut off at this stage. The end of the " rope" was then cut off about $\frac{5}{16}$ in. beyond the seizing, the strands teased out, smeared with seccotine and then twisted round the standing part. The long end of the nigger brown seizing was now used to make the serving of this " lazy splice." These proved so successful that I doubt if anyone could distinguish between a proper splice and one of these " lazy splices."

This process can be simplified by drilling two holes in a flat piece of wood about 10 in. apart and inserting two twist drills or wooden pegs about 4 in. high (see Fig. 10). The rope is wound around one peg and secured with a spring clothes peg, a piece of string is then fastened to the block or threaded through the eye to be formed in the rope, and secured to the other peg or drill shank. A third



Broadside view of Mr. Field's model

spring clothes peg can be used to hold the end of the rope to its standing part while the initial seizing is made, after which it can be removed. Both hands are left free for steadying the rope and winding and guiding the serving.

SAILS

These were made by my wife from fine lawn material, the threads being drawn out and replaced by strands of coloured Sylko to simulate the joints of the sailcloths. A magnifying glass mounted on a stand was most helpful for the sailmaking and for some of the rigging work.

The eyelet holes for lacing the sails to the yards and for attaching the bonnets were worked with small buttonhole stitches. Bolt ropes were sewn around each sail and the " bag " of the sail carefully adjusted.

The painted crosses were a problem at first and colouring matter of various kinds was tried out on scrap material before finding a paint that did not run and dried evenly and fairly quickly. Strangely enough this was some cheap red enamel that I had had in a tin for years and which I tried in desperation as a last resort. It proved to be the most successful!

FLAGS

These were made from fine Jap silk which I soaked in a strong solution of alum and then pinned out to dry on clean blotting paper. The actual designs I drew out on paper and traced on to the silk when dry. The colouring was carried out with water colour paints and the outlines picked out with indian ink. This had to be done carefully as although the action of the alum reduced the tendency of the paint and ink to run it did not entirely eliminate it. When dry the silk was turned over and the reverse side touched up as necessary. The flags were attached to the poles by means of small brass rings simply made by winding thin brass wire round a suitable sized twist drill shank and cutting off the rings so formed with pointed wire cutters.

CONCLUSION

In conclusion I should like to express my indebted-

Continued on page 236

★ Notes on Building a Model of the CROOKED STERN JUNK of the Kung T'an Ho

By G. R. G. Worcester

THE bottom planks when cooled are turned over bodily, and the bulkheads, or half bulkheads, which may total as many as thirteen in number and consist of cypress planks laid horizontally on edge, are assembled in position and gradually built up. These provide the primary strength.

The angle that the line *A B* makes with the line *E A*, determines the angle of the crooked stern, for the planks forming the upper portion of the stern are then built up horizontally parallel and on edge on the line *C D*, point *C* being the higher side of the stern. See Figs. 1 and 2.

The bilge planks are next placed in position beneath and overlapping the bottom planks, a long channel, about 3 to 4 ft. wide, being thus formed along the outside of the bottom.

Plank succeeds plank, carvel fashion, each being nailed in the middle, and the two ends of these shaped timbers are hove down into position with ropes. Nails are driven into the hull in all directions in great profusion and equal carelessness, until the whole hull is a mass of protruding nails, which are subsequently clinched, and the considerable holes filled with putty. Three wales, the highest being the stoutest, are built in as side planks.

The method of joining two planks or wales together so that they make one continuous plank of comparative uniform size is shown in Fig. 3.

Instead of the foremost compartment being decked-in, this space is free of deck planks so that the tracking lines may be secured to the two exposed beams. With this exception the deck is flush until it reaches a point about 18 ft. from the stern.

The square bow, Fig. 4, rising steeply to a much higher elevation from the water than is usual, is reinforced by two, three, and sometimes as many as five parallel fore and aft strengthening pieces, known as Lung-ku, or dragon's ribs. Additional thickness and strength is also provided for along the bottom by the fitting of an apron, or doubling planks, from a point 29 ft. from the bow back as far as the fourth bulkhead. This double skin enables the vessel to withstand frequent contact with rocks, and invariably shows the scars of such impacts.

The mat-roofed deck house is larger and higher than normal, and contains four bunks. The junks have no rudder, but are steered by a gigantic sweep, about the same length as the junk itself, known as the stern sweep, which is operated by the junk-master poised on the high superstructure, crossing the house amidships. He stands on the very top, maintaining his balance by the sweep he holds. This he achieves by means of a long loop of fibre rope, the ends of which are secured to either wings of the bridge. The lofty superstructure, or flying bridge, is weak in construction and so insecurely fitted and precarious, even under ideal conditions, that it is not surprising that a good many accidents happen to the laodahs. Steering of the junk may be supplemented by a smaller side-sweep, about 50 ft. long, which also rests on a bearing pin. This sweep when used in conjunction with the stern sweep affords a turning power unequalled in any other junk. Heavy stones are lashed to the sweeps to maintain the centre of gravity in the correct place. The large stern sweep is liable to get unshipped in a rapid, and so a wooden batten slung from two grummets is fitted. The batten fits snugly to the underside of the bumpkin, see Fig. 5.

When descending the river an extra bow sweep is employed, on which six to eight men may be used. This sweep is usually made from two poles lashed together.

The permanent crew consist of the lowdah, or junkmaster, who also acts as pilot as well as being in control of the stern sweep. Next in rank comes the bowman, two hsien-ch'uen, literarily helpers, and lastly a cook. Trackers are hired as necessary on the upward voyage. Downbound the junk relies on the swift current to carry her down, but for occasional use, as for instance, in quiet reaches or when moving short distances, the junk is propelled by primitive oars, These consist of tree trunks with crudely designed blades.

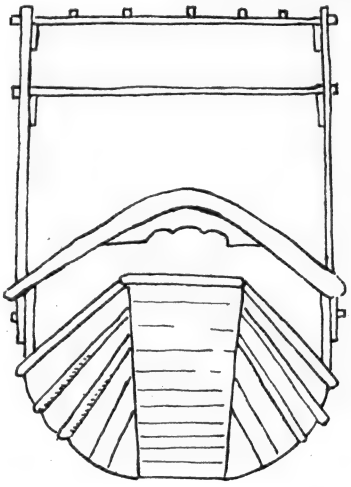
Many absurd explanations have been advanced to account for the novel form of construction of these junks. Actually the reason is not far to seek. The crooked stern is not the result of haphazard workmanship, but of a carefully thought out plan, probably arrived at by rule of thumb and centuries of trial and error method, but as a result completely efficient. It permits of two sweeps of different sizes with nearly the same radius of action to operate simultaneously in a very small space, almost parallel with, and yet unable to foul, each other. And these results could be obtained in no other way.

Some years ago the government surveyed the Kung T'an Ho, and later commenced the removal by means of explosives of some of the obstructions responsible for the worst rapids, with a view to improving the river.

Will this mean that the celebrated crooked stern junks will be replaced by high-powered motor boats ? I sincerely hope not, for they are quite the most interesting and unique junks to be found in China.

* *Continued from January issue, page* 217

Fig. 4.



BOW

Fig. 2.

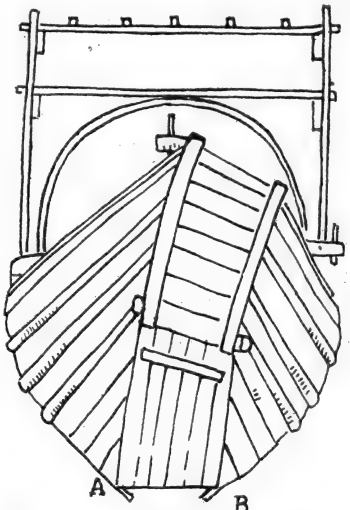


Fig. 3.

Method of scarfing.

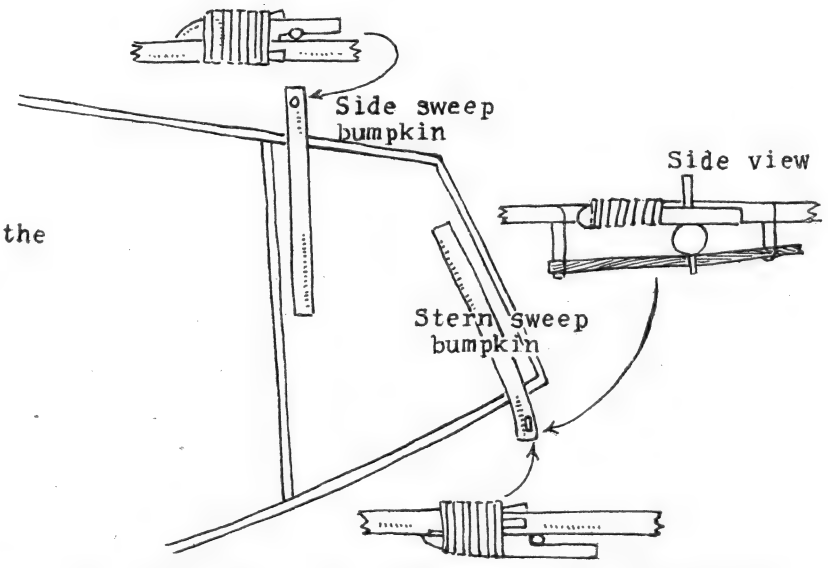
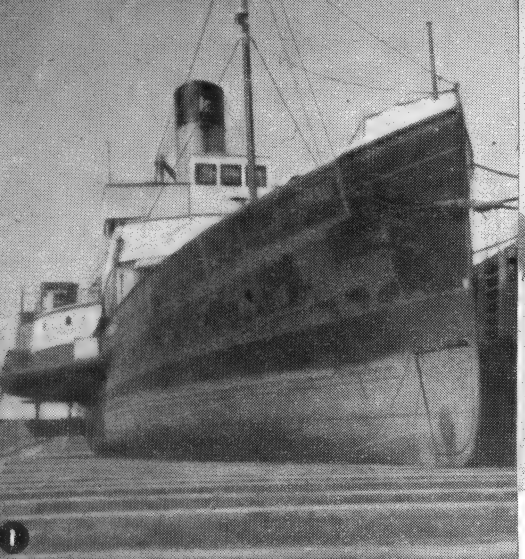
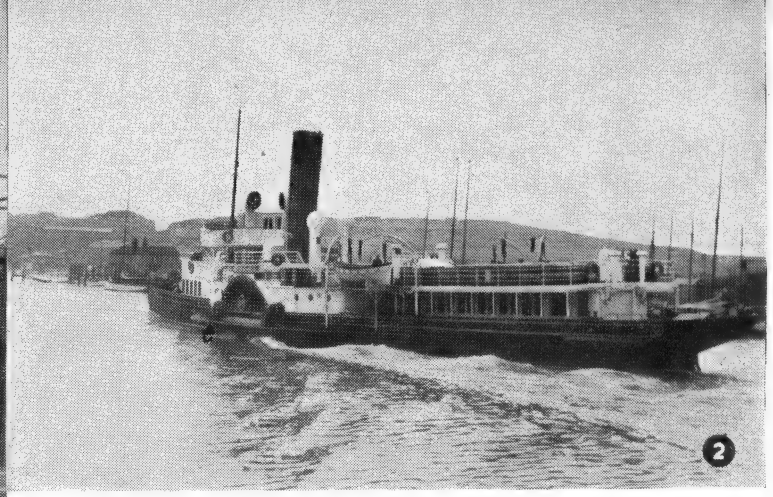


Fig. 5.

Details of the sweeps.





Photos by A. W. Hillman] [*Hailsham, Sussex*

P.S. SHANKLIN

Built by J. I. Thornycroft & Co. Ltd., Southampton, for the Southern Railway. Dimensions : Length, 190.0 *ft. Beam* 26.1 *ft. Depth* 8.7 *ft. Tonnage :* 339 *gross,* 181 *net. 2-cylinder compound engines with cyls.* 27 *in. and* 51 *in. bore, by* 54 *in. stroke. Nominal horse-power,* 160. *Made by D. & W. Henderson Ltd., Glasgow.*

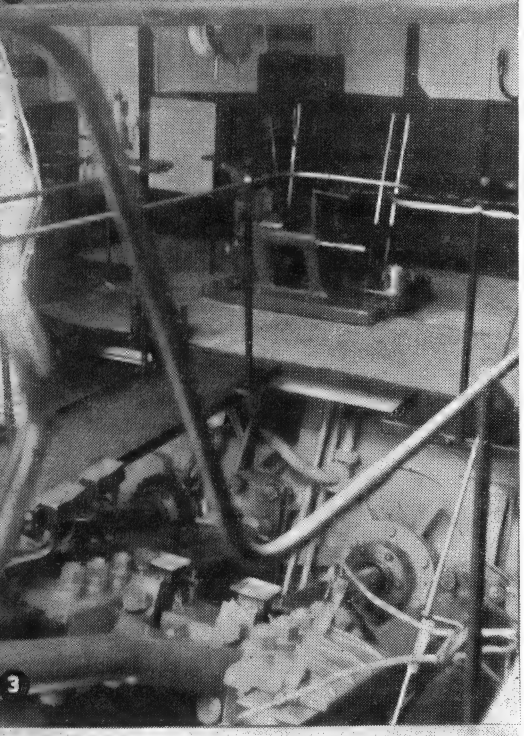
1. View of vessel on grid showing underwater body. Note the fine entrance and flat floor amidships.

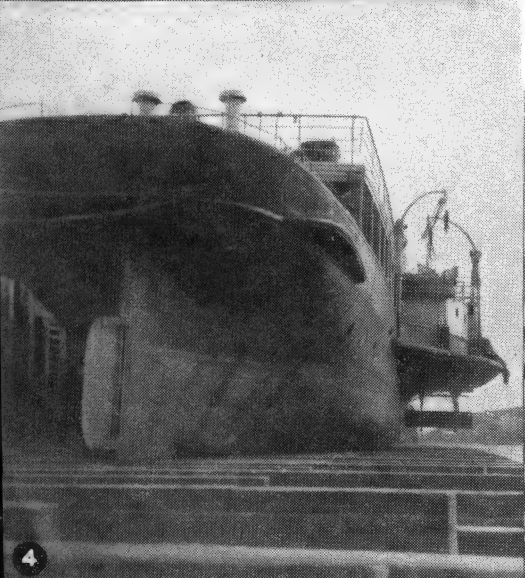
2. General view of the ship taken on port quarter. The beautiful outline of the counter and the easy, sheer line are very evident.

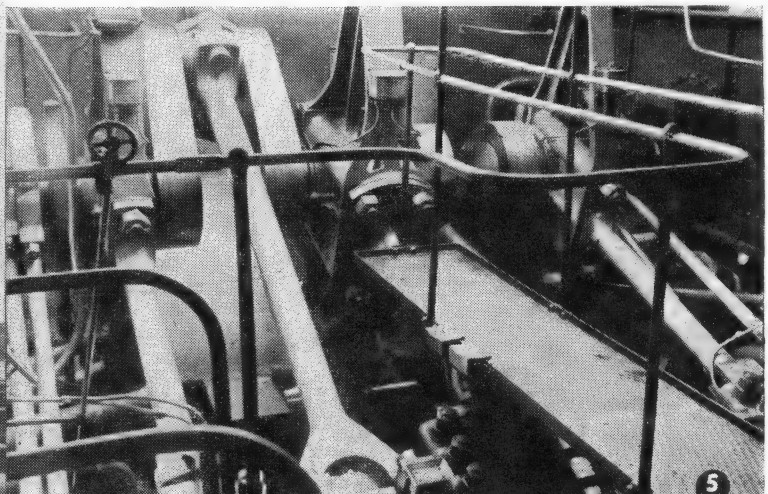
3. View of the engine room showing cross head guide bars, stuffing box on cylinder and control platform.

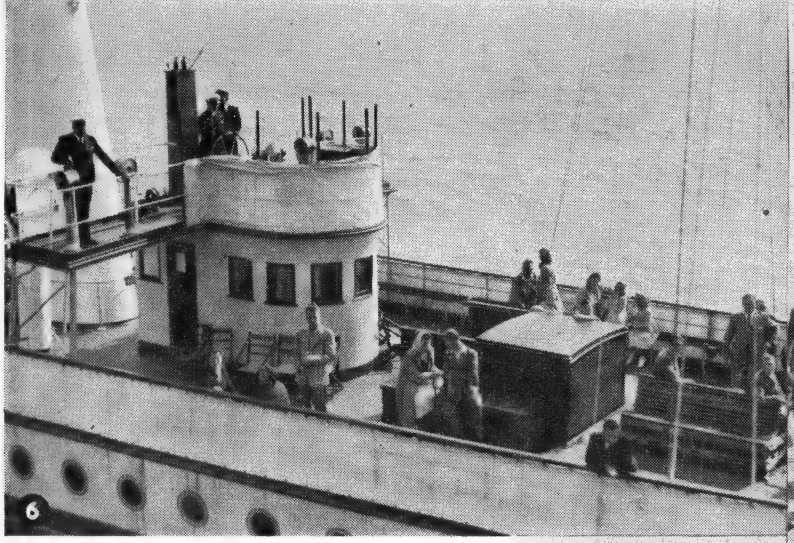
4. Vessel on grid showing the rudder and the easy flow of the line towards the stern and under the quarter.

5. View in the engine room showing the cranks, big ends, crankshaft bearings and eccentrics.









P.S. BRITANNIA

Built in 1896 *by S. McKnight & Co., Ayr, for Messrs. P. & A. Campbell, Ltd., of Bristol.*

Dimensions : *Length* 230.0 *ft. Beam* 26.6 *ft. Depth* 9.6 *ft. Promenade deck* 217 *ft. long. Tonnage* : 483 *gross,* 183 *net. Two-cylinder compound diagonal engines. Cyls.* 37 *in. and* 67 *in. bore by* 66 *in. stroke. Nominal horse-power* 304. *Built by Hutson & Son, Glasgow.*

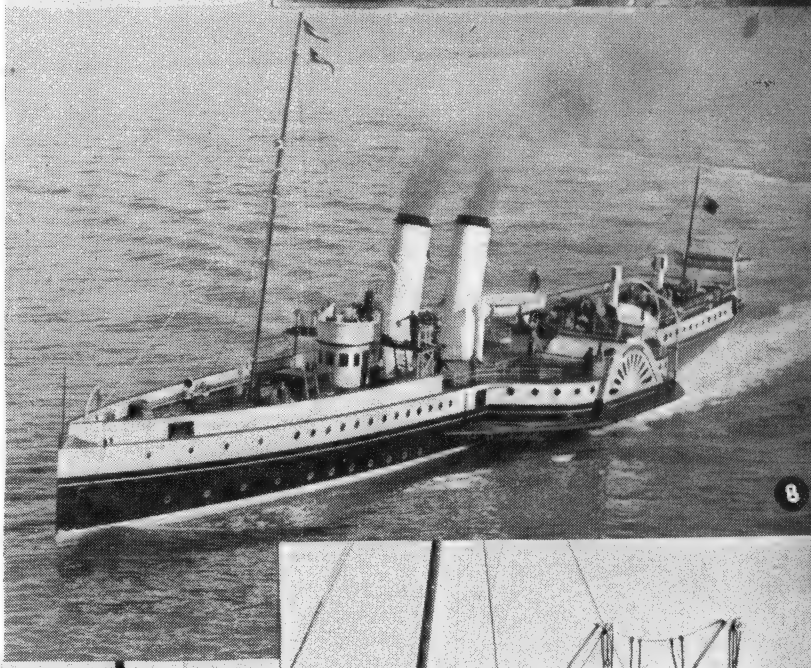
6. View of bridge from forward.

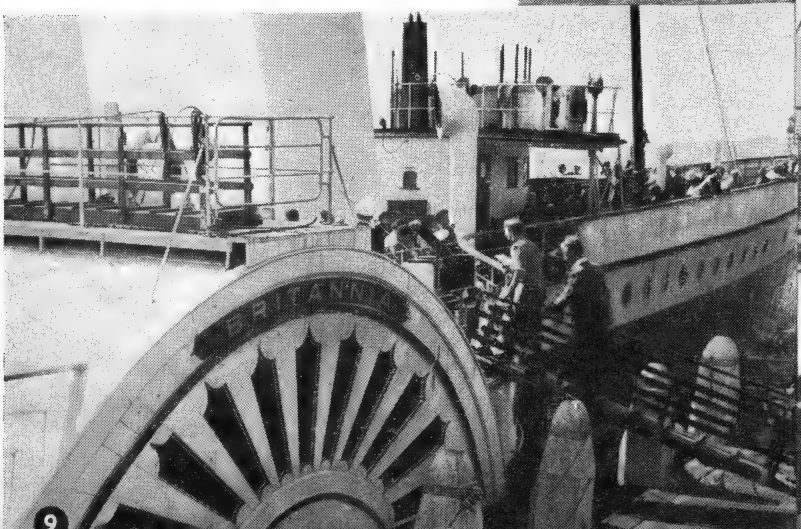
7. Forward promenade deck.

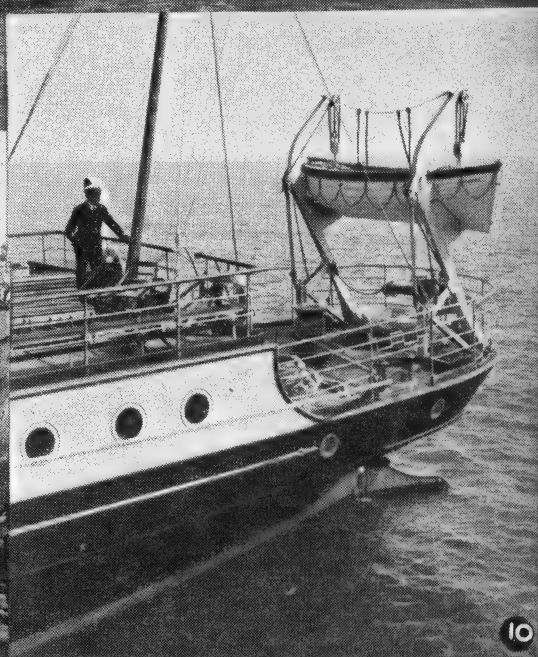
8. Aerial view of ship from port bow.

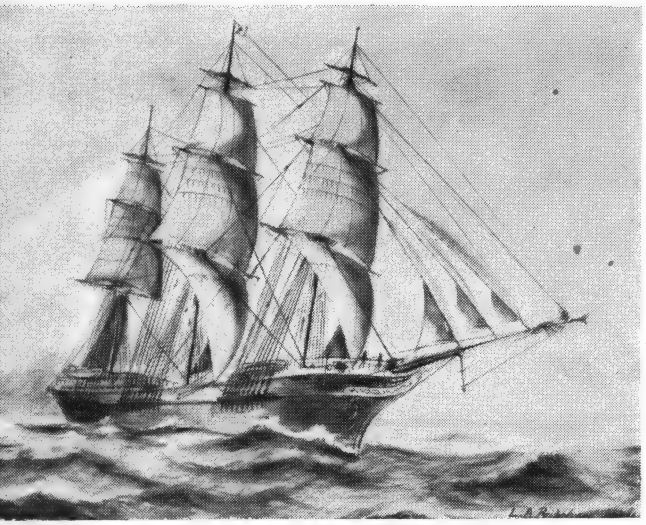
9. Close-up detail of paddle box.

10. Stern showing end of promenade deck, life boats and patent davits.









"*City of Adelaide.*" (*From a painting by L. A. Pritchard*)

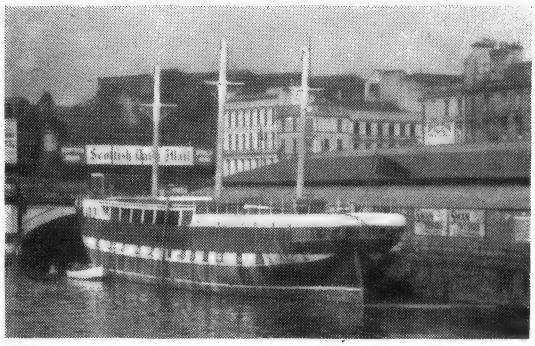
The Ship "CARRICK"

Headquarters of the Scottish R.N.V.R.

Ex the Australian Wool Clipper *CITY OF ADELAIDE*

LAST summer when in Glasgow we were fortunate enough to be invited to lunch on the old clipper ship *Carrick*, ex-*City of Adelaide*, which is now the headquarters for Scotland of the R.N.V.R. We were pleased to note that the ship is being well cared for, and that her hull is sound and likely to last for a long time yet. After the lunch which was well up to the best Scottish standards, we were shown all over the ship and even down to the bilges which we found to be dry and clean. It was the first time we had seen the inside of the hold of a composite-built ship and we were greatly impressed by the beautiful appearance of it. The uninterrupted view of the frames emphasised the lines of the ship and as the hold was clear from well aft almost to the stem we got the full effect of the graceful lines.

An awning or shelter deck has been built over the main deck, and at the break of the poop a circular staircase leads down to the dining room which is located in the 'tween decks. The accommodation under the poop has been entirely remodelled and is now a roomy lounge with a convenient bar and is beautifully furnished in hard woods. The window seats in the semi-circle of the counter were a pleasing feature. At the entrance there is a very realistic waterline model of the ship as she was in her early days. As showing the interest taken in the ship by the local ship-building firms a set of sailing ship masts has been made and presented to the ship by Messrs. Alexander Stephen and Sons Ltd., Linthouse. It will be seen from the photo showing the ship before she left Southampton, that the original figurehead and head timbers had been removed. New head timbers have been supplied and a graceful figurehead, taken from the ship *Tryad* has been fitted and above it a spike bowsprit. Without wishing to appear critical we think it would have been better to have fitted a bowsprit of the diameter of the original and a bowsprit cap without the jib-boom. Another criticism is that the foremast has been stepped too far aft but we understand that this was necessitated by alterations which have been made to the deck arrangements which prevented it being stepped in the correct position. The windows which were cut into the sides of the ship when she was at Southampton have been very neatly embodied in a white strake along the sides of the ship. This, of course, is a departure from her original appearance but is quite in keeping with the painted ports of the later ships owned by Devitt and Moore.



The graceful stern of the old ship

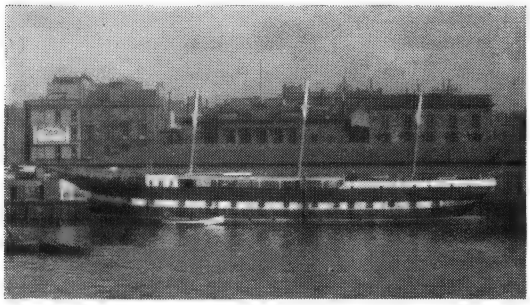
Some time ago we received from Mr. Laurence A. Pritchard, M.I.N.A., a photograph of his drawing of this ship in her heyday, some photos of her when she lay in the River Test off Millbrook, Southampton, and some notes about her, all of which we publish herewith :

" The late Basil Lubbock in his book *The Colonial Clippers* gives the following information regarding the clipper ship *City of Adelaide* :— ' In the Adelaide trade the beautiful little composite ships of Devitt & Moore rivalled those of the Orient and Elder Lines. Of these little clippers the best-known passenger

ships were the *City of Adelaide* and *South Australian*.

The *City of Adelaide* was launched in 1864, from Pile's yard at Sunderland, her measurements being : Reg. tonnage 791, length 176.8 ft., breadth 33.2 ft., and depth 18.8 ft. She was commanded by Capts. D. T. and S. J. Bruce, and was owned by Devitt & Moore in 1884-5. The *City of Adelaide* was always in the South Australian trade and usually loaded wool at Port Augusta. Both she and her larger sister, the *South Australian* were still running in the late 'eighties.

The *City of Adelaide* was a very fast little ship with a 65-day run from Australia to her credit.



" Carrick " at her moorings in the Clyde

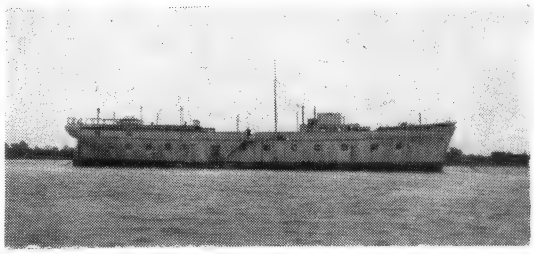
At that time she was under the command of Capt. David Price who was noted for his game leg, his straw hat, his kenspeckle figure, and his very colourful personality.

What her subsequent history was after she came out of the Australian trade down to the time she was purchased by the Southampton Corporation about 1893, a period of some 4 or 5 years, I have not been able to trace.

She remained at Southampton as the Port Isolation Hospital ship for 30 years, so her connection with the port was a long and useful one. The Corporation bought her for £1,750 and sold her to the Admiralty for £2,500, so she was a profitable investment.

An old lithograph which I believe is still in the possession of the Parker Galleries, London, is reproduced in the *Colonial Clippers*, and is, I think, the only known contemporary picture of her.

Just before she left Southampton in 1923, I took several photographs of her, and a few years ago made a painting of her as she was in her clipper days, for a friend whose father had travelled out to Australia in her in the early 'eighties.



" Carrick " moored in the River Test. Photo by L. A. Pritchard

It will be seen from the photographs she had been rather badly mutilated, especially about the bows, the trailboards and the figurehead being entirely cut away, a series of square windows cut in her sides at lower deck level, and a huge box-like structure erected on top of the forward deckhouse.

She was an iron-framed composite ship, and it says something for the excellence of her construction that she is about to begin a new lease of useful life at the advanced age of 84 years."

From 1924 to 1947 she lay at Greenock where she was used as a training ship. When she was replaced she was presented by the Admiralty to the R.N.V.R. to serve as their Scottish headquarters. Since then she has been thoroughly overhauled and refitted to suit the requirements of her new career.

When she was brought up the river to be moored at her berth just above Jamaica Bridge great care had to be taken both in selecting a suitable tide and in seeing she was floating at the correct draught. The clearance under the bridge was a matter of inches, as may be realised from the photograph taken from the port quarter of the ship. However, the operation was successfully accomplished, and where she lies not only is she convenient for members of the R.N.V.R. but she is seen by thousands daily, to a large proportion of whom she will be an inspiring reminder of the glorious days of sail. Would that the *Cutty Sark* could be restored to her former glory and moored in the heart of London—perhaps somewhere near the *Discovery*—so that the thousands of shiplovers in London could have the joy of seeing what was one of the loveliest ships of all time.

MODEL POWER BOAT TOPICS (*Continued from page* 224)

In the other design illustrated, what amounts to two complete steam engines are used, with their cylinders obliquely opposed to economise space, particularly in a vertical direction. The crankshafts are, in this case also, geared together, and one shaft is used to drive the valve gear for the opposite cylinder. This is undoubtedly one of the most compact designs for a twin-screw engine which has ever been produced.

It is equally possible to design specialised forms of i.c. engines for propelling twin-screw boats, and this has been done with great success in at least one case. The type of engine which lends itself most readily to this form of design is the " split single " two-stroke, which is often made with two crankshafts geared together ; but other types of engines could be adapted quite successfully, and a possible prototype is the engine of the Ariel " Square Four."

Mr. R. Mitchell, of Runcorn, has produced a " split single " two-stroke of 10 c.c., which is fitted to his boat *Gamma* and made a very successful debut last season. This is the only really effective example of a twin-screw racing boat that I have ever encountered ; the general opinion of the racing fraternity is that to duplicate either cylinders or propellers is but to increase complication and invite trouble. But the possibility of doing both, as simply and efficiently as this, gives one food for further thought.

*GLUES and ADHESIVES for Marine Modellers

PART II

By H. B. TUCKER

FOR bringing pressure to bear in cramping up a glue joint, the ordinary G-cramps are not much good, at any rate as far as a bread-and-butter hull is concerned, but it is not a very difficult matter to make up special ones.

Take a piece of hardwood 1 in. thick and saw off three strips for every cramp you are going to make. For a model 36 in. long four cramps will suffice, for one 48 in. long you will need five, and so on. The strips should be 3 in. to 4 in. longer than the extreme beam of the boat under construction. From any good ironmonger procure suitable pieces of iron or brass "studding." Studding is metal rod screw-threaded for its entire length. You require two lengths of studding for each clip being made up, and the length of each piece should be at least 5 in. more than the extreme body depth of the hull excluding external keel or fin. For each piece of studding you also require two ordinary hexagon nuts to fit, one butterfly nut to fit and a washer.

Take the hardwood strips and drill holes 1 in. in from each end of a size to clear the studding. Now run a nut about 2½ in. up one of the pieces of studding, and put two of the hardwood strips on the bottom with a second nut underneath to hold them. Fix another piece of studding similarly through their other ends. The double hardwood strip with a length of studding at each end forms the bottom member of the cramp. The top member is a single strip held down by butterfly nuts with a washer under each. The construction of the clamp will be plain from my diagram.

The first layers to be glued up are the two bottom layers of the hull. The reason for starting at the bottom is that upper layers, having their insides cut out, may distort under the pressure. The first cramps to be put on should be those at the extreme ends of the boat, followed by the intermediate ones. When you put the first cramp on, only screw sufficiently tight to hold it in position. When all the cramps are in position with a light pressure on each, tighten up a little on each, and keep going round pulling each one up a little in turn until all are really tight. The great thing is to screw down evenly and not get the cramps lopsided or with uneven pressure.

Here is a little tip for the beginner that I have never seen given in any book or article. Before coating the faces of the layers with glue, put them in position and align carefully. They can be held in their relative positions with a cramp at each end. Into a part of the inside of the layers that will be carved away in the final shaping and being very careful that you do not penetrate to the outside, put two screws, one at each end. Remove the layers from the cramps and take out the screws. When you have coated the faces of the layers with glue, assemble your joint and put the screws in again. This will ensure getting perfect alignment at once and prevent any chance of movement while you are cramping up. When the joint is set and you remove the work from the cramps, the screws must be removed before gluing another layer in position. In the case of the bottom layers the screws can be right in the centre as the screwholes will be covered and not show when the boat is finished.

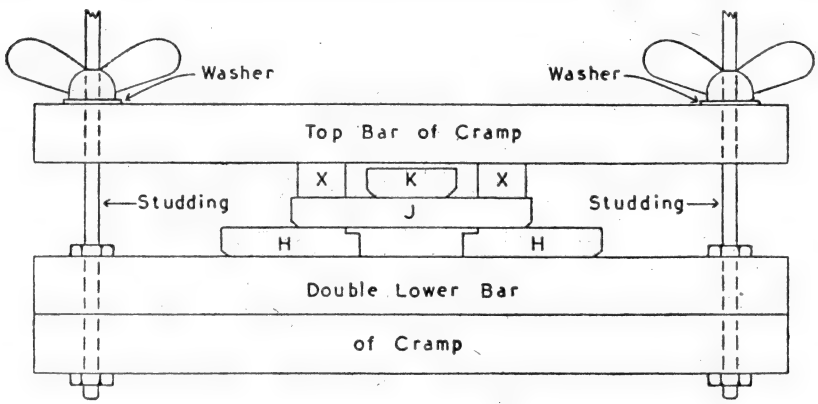


Diagram showing construction and application of gluing-up cramp

It will be observed that in our diagram the cramp is shown in use, gluing the third layer *H* to the bottom two *J* and *K* which have already been bonded together. The joint under pressure is, therefore, between the second and third layers. In order to exert pressure just where it is needed, packing pieces *XX* must be used. Not only does this ensure the maximum pressure on the right spot, but if the packing pieces were omitted, the pressure would exert a distorting strain on the second layer of the

*Continued from January issue, page 206.

hull. Of course no packing pieces are used when the bottom two layers are being joined together.

Casein glue is prone to stain wood, and consequently, care should be taken in its use when working on wood that is subsequently to be varnished. However, in the event of wood becoming stained by it, the disfigurement can be eradicated by treatment with a weak solution of oxalic acid.

Synthetic resin glues were originally invented by a German chemist, but were perfected in this country. The war hastened this because it was found that aeroplanes bonded with casein glues disintegrated under constant exposure to weather. The world-famous *Mosquito* is an outstanding example of an aeroplane built with a resin-bonded wood fuselage and wings.

These glues have two chemical bases : phenol-formaldehyde and urea-formaldehyde. They are also divided into two categories in both the P.F. and U.F. varieties. These are the *hot-setting* glues which require high temperatures to harden and consequently have to be cured by baking in an oven (or muffle), and the *cold-setting* glues which set satisfactorily at ordinary room temperatures (50 deg. to 90 deg. F.).

Very obviously the average small workshop or amateur worker will not have the facilities available for the use of the hot-setting varieties of resin glues, so I will confine myself entirely to *cold-setting* types.

Some varieties of resin glues are gap-filling and the rest close-contact adhesives. The latter require very good surfacing of the faces of the joint and the use of considerable pressure in cramping up, and are, therefore, unsuitable for gluing the strakes of a planked boat edge to edge, and many other purposes in model building. On the other hand the gap-filling glues need only sufficient pressure to keep the faces in contact. Further, they will fill gaps up to 1/20 in. without fear of crazing, and form just as strong a joint as a close-contact adhesive. Since a gap-filling glue will also act as a close-contact glue, the model-builder will be well advised to use a *gap-filling* type.

Synthetic resin glues make a considerably stronger bond than casein, and are actually the strongest glues extant. Further they are considerably more water-resistant. Joints made with a resin glue do lose a little of their strength when in a saturated condition, but their wet/dry adhesive strength ratio is something like 80 or 90 per cent., and they dry out again to practically their original strength. Over a span of years, if unprotected by paint or varnish, joints made with these glues may possibly fail under continuous exposure, but for model building purposes, they can be considered as being, to all intents and purposes, water-resistant. Nevertheless, they should be kept protected with paint or varnish.

From the above it will be seen that for the model builder, a cold-setting glue of the gap-filling type is the most suitable, but there are other points to consider in the selection of a resin-glue.

All synthetic resin glues consist of two parts—the *Resin* and the *Catalyst*. Of these, the resin is a greyish compound of the consistency of treacle, while the catalyst is an acid compound fluid. The resin will not set until it is blended with the catalyst. Hence, it gets the alternative name of "*Hardener*." For every resin there are several different hardeners available, giving different setting speeds, hence we have another alternative name "*Accelerator*."

Most makers of these glues give tables with their glues showing the setting times required for each of the alternative hardeners at various temperatures. Obviously the time required for setting at 90 deg. F. is much less than at 50 deg. F.

Now all the different stages in the life of the glue, from mixing to final setting, are interdependent. Thus a glue used with a fast hardener will have a shorter pot life, assembly time and setting time, than one used with a slower catalyst. Hence, the time time required for spreading and assembly as well as the temperature of the workroom must be borne in mind when selecting a hardener. The best plan is to have two or three hardeners of different speeds, and employ the appropriate one for the occasion. Resin glues set far more quickly than casein glue, which is another point in their favour. It must be emphasized, however, that when a worker is using a resin glue for the first time, *he should most carefully read and follow the maker's instructions*. This implies among other things, the use of a thermometer to know the temperature of the workroom.

There are two methods of using resin glues, the *Mixed-Glue Application* and the *Separate Application* method. Some glues are suitable for the former and some for the latter, while a few can be used either way.

In the *Mixed-Glue* method, the resin and hardener are mixed together before application. When this method is used, it is very important to get the *exact* proportion of hardener to resin. Since the proportion is one part of hardener (by weight) to so many parts of resin (by weight), the proportion varying according to the make of glue being used, this weighing can be a very troublesome business. It is no use trying to guess the quantities by eye, as a wrong amount of hardener can produce all sorts of unexpected results. If insufficient hardener is used, the resin may not set at all, or take too long to set. Too much hardener will cause the resin to set too rapidly and in extreme cases cause the glue to craze. Since the proportions of glue to hardener are 10 or more to one, it means weighing carefully the vessels into which these are placed before measuring out, and for the quantities used by modellers, scales capable of accurately weighing small quantities are necessary. As soon as the mixing is complete the pot life of the glue starts, so no time should be lost in spreading it on both the surfaces of the joint.

By the *Separate Application* method, the resin is spread on one face of the joint and the catalyst on the other. The chemical action of the hardener does not start until the two faces are brought into contact. Since the resin is stiff and takes some spreading, this should be done before the hardener is applied to the other face. This method has the

Continued on page 236

CLASSES OF MODEL RACING YACHTS

By F. C. TANSLEY

The Model Yachting Association (of Great Britain) recognises six classes of sailing models for racing purposes, and publishes separate booklets of rules concerning them. Our readers, especially those wishing to take up the sport for the first time, will like to have a description of the main characteristics of these craft.

The large classes are : " A " 12 metres and 10-raters. The medium and small classes are : " M " (Marblehead) 6 metres and 36 in. The " A " and metre classes are built to complex rules ; the 10s, Ms, and 36s to much simpler regulations.

There are good natural or historic reasons for the existence of all the present classes. Those built to the elaborate rules exemplify the large sea-going yachts which are seen in summer regattas, especially in the Clyde, Solent, and Torbay districts in summertime. The others are built to simple measurements akin to those applied to the small decked or open racers which give so much sport to British youth all around our coasts.

The following Table is for comparative purposes only, and the dimensions are average or typical. Actually within the limits of each rule the variety of shapes and sizes is extraordinary and designers find plenty of scope for their ingenuity. The "A" class boats are the largest and most spectacular ; the " 10's " are more numerous and popular ; the medium-sized " M's " are the most popular boats in England at the present time and are being built in large numbers. It is hoped in a future issue to set out the formulae, rules and characteristics of the boats so far as this can be done briefly. The actual booklets giving complete details can be obtained from the M.Y.A. Hon. Publications Secretary, MR. C. V. HOOPER, 4, Freke Road, Battersea, London, S.W.11.

M.Y.A. RACING CLASSES. APPROXIMATE MEASUREMENTS.

Classes	Number registered by M.Y.A.	L.O.A. in.	L.W.L. in.	Beam in.	"Draught" of water in.	Total weight lb.	Sail area (variable) sq. in.
Complex Rules							1800
Intl. A	617	70	49/51	15/17	11	48/52	1900 v
Intl. 6 m.	609	56	38	11	8/9	22/24	1100 v
Intl. 12 m.	270	Raced as size of "	a class in S A " Interna	cotland onl tional class	y—about		
Simple Rules							
British 10 raters ...	1,134	70	50	11	10½ Total depth of hull	27/30	1200 v
British 36 inch (restricted)	660	max. 36	34/36	max. 9	11 Draught	max. 12	800/1,000
Intl. M	382	max. 50	47/50	9/10	9	16/20	800 max.

L.O.A. = Length " over all " (along deck). " Draught " of water = depth below L.W.L.
L.W.L. = Length along water line (floating level). Total weight or displacement=including hull, spars, fittings, etc.

EARLY XVI CENTURY SPANISH CARRACK

(*Continued from page* 229)

ness and thanks to Mr. White of the Science Museum for his advice and assistance, even to the extent of removing the large museum model from its case in order that I could make a close inspection of some of the details not apparent when looking at the model in the case, also to Mr. Alec Purves for his courtesy and valued assistance in giving me the benefit of his expert knowledge on the matter of the correct flags to use with this model and, last, but not least, to Lt.-Comdr. J. H. Craine ("Jason") for his initial encouragement, without which I should never have aspired to exhibiting a model of mine and for his criticisms which have always proved a " spur " to make and do something better.

GLUES AND ADHESIVES

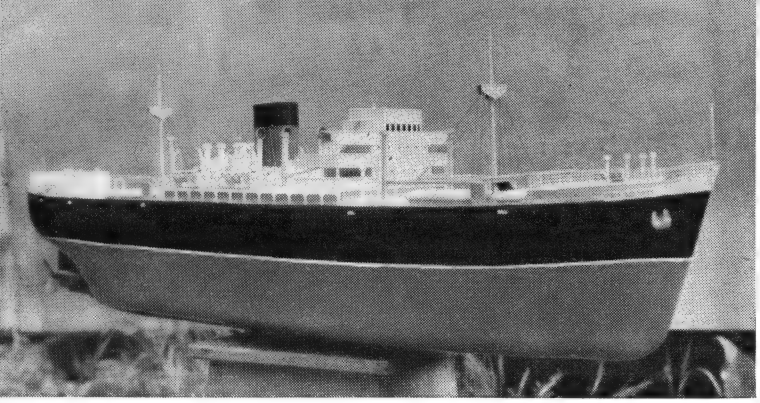
(*Continued from page* 235)

great advantages of simplicity (no mixing and no weighing) and economy (no residue of mixed glue to be wasted), besides giving more time to spread the resin without being in any way affected by the speed of accelerator used.

It is therefore recommended that the model maker should use the *Separate Application* method, and select a glue suitable for it. It will, therefore, be seen that the glue for our purposes is a cold-setting, gap-filling glue suitable for separate application.

In the next, and final instalment of these articles, I shall have more to say about the use of resin glues, and some notes about wood for laminated constructions.

To be concluded



OUR READERS' MODELS

No. 6

Mr. S. V. HILL'S

MODEL CARGO LINER

"*PENANG*" (*Two Sisters*)

THE model was commenced late in November, 1947, after an appeal from my daughter, aged 12, for a model steamship, and is based on the notes published in *The Model Engineer* for *Penang* during 1947.

The hull is constructed on a $\frac{3}{8}$ in. × $\frac{3}{8}$ in. brass keel slotted along the bottom to take $\frac{1}{8}$ in. × $\frac{1}{8}$ in. brass frames (small brass angle or tee not being available). 22 s.w.g. brass sheet was obtained for the plating and cut and hammered to shape, chamfered along all edges, and soldered with tinman's solder to the adjacent plates and to the frames.

The superstructure and decks are also built from 22 s.w.g. brass sheet. Twin screws were fitted to facilitate straight running by balancing the torque variation, and being contra-rotating.

The stern tubes are made from drawn brass tube with turned ends silver-soldered at the inboard ends to accommodate ball thrust bearings which I turned, 3/32 in. balls being purchased to complete. At the outboard end of these tubes the shafts run in Tufnol bushes.

The screws were made by turning the bosses and cutting three angular slots. The blades were filed to shape together and then spooned around a block filed to shape so that each blade matched its partners, and finally silver soldered in position.

The boiler was constructed as a twin drum job and steamed well but was found to create a permanent list to which-ever side the ship rolled first and a second boiler was made based on the description in *Model Ships*, consisting of a single drum $2\frac{3}{8}$ in. dia. × twelve coils of $\frac{1}{4}$ in. dia. bore tube. This boiler, with a new and lighter blow lamp, steamed extremely well and reduced the displacement to the required level.

The first sailing trials were made on the 6th August, 1948, eight months after the "laying down of the keel."

I hope to make and fit a power feed pump at a later date, provision already having been made in the gearbox for the drive, also I shall replace the Stuart Star engine by one of my own manufacture.

A point of interest may be the difficulties encountered during manufacture. I work in Redditch, Worcestershire, and my home, to which I travel each week-end, is in Pontefract, Yorkshire. Several of the parts of my model have travelled along the L.M.S. line so often that many of the guards appear to have a personal interest in my ship, portions of which were made in my landlady's "bike" shed, my office and my own garden shed.

I have spent upwards of 1,000 hours on this model (my first) and have enjoyed every minute of the time. I hope that the result of my labours will meet with your approval.

M.E. SPEEDBOAT COMPETITION RESULTS, 1950

Name of boat	Owner	Total weight lb.	Engine				Hull			Propeller					Speed m.p.h.
			Cyls.	Type	Bore	Stroke	Length	Max. beam	Steps	No.	Dia.	Pitch	Blade area sq. in.	Blades	
					Class A (i.c.)										
Faro	K. G. Williams	14	1	4 st.	$1\frac{5}{16}$	$1\frac{5}{16}$	40 in.	12	1	1	3	6	1.84	2	58.8
Beta II	R. E. Mitchell	$8\frac{3}{8}$	1	4 st.	1.07	1.00	32 in.	$14\frac{1}{2}$	1	1	$3\frac{1}{4}$	$4\frac{1}{2}$	1.8	2	46.06
					Class A (steam)										
Ifit 7	A. W. Cockman	$15\frac{7}{8}$	2	s.a.	0.750	0.875	40 in.	16	1	1	$3\frac{15}{16}$	8	2.9	2	52.45
					Class B (i.c.)										
Sparky II	G. A. Lines	7	1	2 st.	$1\frac{1}{8}$	$\frac{7}{8}$	38 in.	13	1	1	$3\frac{3}{8}$	7	2.0	2	61.0
Gamma	R. A. Mitchell	$5\frac{3}{8}$	s.s.	2 st.	0.74	0.70	28 in.	12	1	2	$2\frac{3}{4}$	5	1.0	2	48.7
Sparta	N. F. Hodges	$5\frac{3}{16}$	1	2 st.	$1\frac{1}{8}$	$\frac{7}{8}$	29 in.	10	1	1	3	6	1.7	2	41.0
					Class B (steam)										
Vesta II	F. Jutton	$7\frac{11}{16}$	1	s.a.	$\frac{7}{8}$	$\frac{7}{8}$	$28\frac{1}{2}$ in.	$12\frac{1}{2}$	1	1	3	$7\frac{1}{2}$	1.75	2	51.5
					Class C (i.c.)										
Jo-Mac	D. Innes	$4\frac{1}{2}$	1	2 st.	$\frac{15}{16}$	$\frac{7}{8}$	30 in.	9	1	1	$2\frac{3}{4}$	$4\frac{1}{2}$	1.25	2	55.3
Don II	P. Ribbeck	$1\frac{7}{8}$	1	2 st.	$\frac{23}{32}$	$\frac{7}{8}$	24 in.	$6\frac{3}{4}$	1	1	$3\frac{1}{8}$	$6\frac{1}{2}$	2.75	2	52.5
Foz	R. A. Phillips	5	1	2 st.	0.939	0.875	$25\frac{9}{16}$ in.	$11\frac{7}{16}$	1	1	$2\frac{1}{4}$	6	0.385	2	52.4
Bullruch Jr. II	G. D. Noble	$4\frac{1}{8}$	1	2 st.	1	$\frac{3}{4}$	24 in.	$11\frac{1}{2}$	1	1	$2\frac{3}{4}$	6	1.1	2	51.14
Moth	J. H. Benson	$3\frac{3}{8}$	1	2 st.	$\frac{29}{32}$	$\frac{7}{8}$	24 in.	10	1	1	$2\frac{5}{8}$	6	1.125	2	40.75

FOR THE BOOKSHELF

THE ROYAL NAVY

By LEONARD W. SHARPE

Published by The Studio Ltd., 66, Chandos Place, London, W.C.2. Price : 3s. net.

The shipmodeller and the artist have a good deal in common, especially in the way they look at the objects they wish to represent. The builder of working models of ships may be more of an engineer than an artist, but unless he has the artistic eye his models can never resemble very closely their prototypes. The builder of representational or showcase models however, must be more of an artist, he must look first for the general proportions and the main masses, as unless he gets these just right his model will fail completely to represent the original ship. This applies whether the model is large or small, and whether it shows the entire hull or shows the ship in a sea setting. The importance of the artistic approach is perhaps more obvious in the case of miniature and scenic models, as here the question of selection and suggestion is introduced. The smaller details disappear altogether in the miniature model, exactly as they do in the painting of a ship at a certain distance, and the question of when to eliminate detail and when it should be merely simplified calls for careful consideration in both arts.

Mr. Sharpe's book will be of great assistance to the modeller interested in modern naval ships. Almost every type is illustrated, with special emphasis on destroyers, cruisers and battleships. The differences between the various examples of each class are clearly indicated, and perspective drawings, both simplified and detailed, of deck fittings such as guns, pompoms, searchlights, torpedo tubes and bridge superstructure are included.

A feature of special interest to our readers is the complete description in both text and drawings of the deck arrangement of the destroyer *Javelin*, which was described in *The Model Engineer* during 1944 and which forms the subject of the set of drawings P.B.13 in our list of working drawings. Builders of this model will find this book of the greatest assistance in clearing up doubtful points. Further the author of this book is well-known to our readers for his excellent series of articles on the model of a cargo liner *Penang* which was published in *The Model Engineer* during the autumn of 1947.

The ability to make clear sketches of ships and their component parts is a valuable asset to the model maker, and although most modellers are able to make intelligible sketches, a careful study of the various methods mentioned in the book will certainly result in better drawings, with a consequent improvement in the quality and accuracy of the models. Other books in this series, particularly Mr. Sharpe's companion book, " How to Draw Merchant Ships," Peter Anson's " How to Draw Ships," Michael Leszcynski's " How to Draw Sail and Sea," and " Marine Perspective," will also be of interest to our readers, and at their uniform price of 3s. are much too good value for money to be overlooked.

MODEL YACHT CONSTRUCTION AND SAILING

By LT. COL. C. E. BOWDEN, A.I.MECH.E.

Published by Percival Marshall & Co. Ltd., London. Price : 3s. 6d. net.

This, the third edition of this popular book, has been thoroughly revised and brought up to date, and in its present form is one of the most useful books on this fascinating subject available at the present time. In addition to the general revision, Chapters II (Airflow around the sails and its effect upon the hull), III (Hull design and methods) and V (The automatic steering gear) have been expanded, and a new chapter VII (Wingsail experiments)—has been added. Col. Bowden's application of aerodynamic principles to yacht design is already well known and although in certain quarters dissenting views are freely expressed it is now generally admitted that the yachtsman, whether he sails models or full sized yachts, can gain a wealth of useful knowledge from the science of aeronautics. Col. Bowden has tried out his theories in sailing both full sized yachts and models and can thus write with some authority. The chapter on constructional methods includes some good photos and text on the vertical " bread and butter " method. This method has certain advantages as regards the keel and fin and is also somewhat more economical in wood. The chapter on " Automatic Steering Gear " deals principally with the Braine gear, and the notes on its use will be found very helpful. As this is the only book of this type which deals with the airflow on a plane as considered from the model yachting angle, and is also the only book dealing with the " Wing sail " experiments, both model and full scale, it is worthy of consideration by both the beginner in model yachting and the expert.

MAKE YOUR OWN O GAUGE MOTOR

By E. F. CARTER

Published by Percival Marshall & Co. Ltd., London. Price : 3s. 6d. net.

Although written chiefly for the model railway enthusiast this book will have a strong appeal to the shipmodeller who prefers to drive his models by means of an electric motor. The motors described in the book would be very suitable for driving small models of various types of power-driven boats. From the clear instructions and diagrams included in the book anyone with even limited facilities should be able to make his own motor and thus achieve the satisfaction and the economy that always results from making things oneself.

For further reviews see opposite page

Editor's Correspondence

DEAR SIR :

With regard to the model cargo liner, *Penang* as described in *The Model Engineer* during the autumn of 1947, I would be glad if you could tell me the diameter of wire which should be used for the shafts of the windlass, and for those of the Welin davits. I would also like to know the diameter of wire for the rungs of the fo'c'sle ladders, and for the hand rails.

I find your magazine very interesting and helpful but wish you could give us some articles describing the various deck fittings to be found on a ship.

Yours faithfully,

Birmingham. F. A. EAST.

In reply to your letter, the scale of the model "Penang" is approximately $\frac{1}{8}$ in. = 1 ft. The shafts of the windlass would be about 3 in. diameter, which would be 1/32 in. or, say, 20 S.W.G. The shafts for the Welin davits would be slightly less. To be correct to scale, the rungs on the fo'c'sle ladder and the hand rails should be rather less than half this, or, say, 1/64 in. diameter, 28 S.W.G. This is obviously too thin to stand up to the treatment the model would get when sailing, so a thicker wire should be used.

I am glad you find our magazine of interest. We are constantly on the lookout for drawings of ship's fittings. The Shipmodeller's Scrapbook was started with the intention of supplying information on these and similar features. You will find a further instalment of the Scrapbook in our January issue.

DEAR SIR :

I have long tried to get convincing answers to the following questions. Can any reader of MODEL SHIPS AND POWER BOATS help me ?

(1). What was an "Armolest" in the Navy of 150 years ago ? The following occurs in Capt. Marryatt's "Mr. Midshipman Easy," third page of Chap. XXV : ". . . Jack (Easy) . . . . climbed into the maintop where he took a seat on the armolest . . " I believe a hammock was sometimes taken into the top as "top-armour" against small arms fire ; can it have anything to do with this or possibly was it some kind of a chest for storing small arms ?

(2). What is the real purpose of the grating fitted to the tops of funnels in ships of the modern Navy ? The answer "To prevent such things as bombs from falling down the funnel" appears to me most unconvincing. The chance of a bomb falling plumb into the inside of the funnel seems remote, and if it did occur, the grating would be futile in keeping out anything but the lightest of missiles.

(3). In the topsail schooner rig, the leach of the foresail fouls the lower topsail braces. In a soldier's wind with the tops'l yards braced up a bit and the foresail sheet eased a little, the interference is considerable. Bag o' wrinkle could not be used as it would stop the braces from running through the blocks. I made a six foot model of such a schooner of about 1880 and this chafe is most obvious : was this accepted as inevitable or have I missed some obvious solution ?

I should be most interested to receive any comments on the above, and if possible answers.

Yours faithfully,

Chelmsford. G. H. LANDON.

CORRECTION

Our reply to Mr. R. O. G. Booth last month was not checked as carefully as it might have been. The line from the end of the counter in the diagram should have been marked X; also for taking moments the formula should read : Moment of A1 = L1 × A1, not CE1. Similarly, CE2 and CE3 should read A2 and A3 respectively. The equation for finding L3 is correct, but the final sentence should read : "L3 is the distance from X to the centre of effort of the suit of sails CE3, which must be on a line joining A1 and A2."

We apologise to our readers for any confusion which may have arisen through our slackness.

FOR THE BOOKSHELF *(continued from opposite page)*

THE SHAPE OF SHIPS

By WILLIAM MCDOWELL, A.M.I.N.A.

Published by Hutchinson & Co. (Publishers) Ltd., Hutchinson House, W.1. Price 8s. 6d. net.

This is a book which will appeal to the lover of ships whether he (or she) is young or old, a shipmodeller or an artist, or just an ordinary reader with only a passing interest in ships. Within its 232 pages we have a concise and well-written history of the ship from its earliest beginnings to the present day. Owing to the fact that the author spent his early years in Vicker's shipyard at Barrow, during some of which he was in the drawing office, he tends to look at the ship from the constructor's point of view. This is seen both in his writing and in his drawings, and adds greatly to the value of both for the model maker. The illustrations especially, owing to this constructive quality and to their clearness and general high standard of accuracy, will be extremely useful and interesting to the model maker. The book contains sixteen plates in colour and innumerable drawings in line.

Where all are so good it is difficult to particularise, but we were especially impressed by the following full page drawings : "Viking Ship A.D. 1000," "*Sovereign of the Seas* on the stocks," "The Age of Decorated Ships," "Charles II's yacht *Mary*," "Sailing Ship Rigs," and "Modern Working Ships." The only drawing we would criticise is that showing the end of Grenville's *Revenge* where the *Revenge* looks rather small as compared with the Spanish ships. The book concludes with a most interesting chapter on "The Building of the Ship" and a useful glossary of nautical terms.

News from the Clubs

MODEL YACHTING ASSOCIATION

REGATTA DATES FOR THE BRITISH OPEN CHAMPIONSHIPS, 1951

" M " Class ...	Dovercourt, Essex	...	May 12th, 13th, 14th. Whitsun weekend
12 metres ...	Paisley	...	May 26th
10 raters	Birmingham	...	July 30th to August 3rd
36 in. ...	Birkenhead	...	August 4th, 5th, 6th August weekend
" A " Class ...	Fleetwood	...	August 19th-25th
6 m. ...	Fleetwood	...	September 22nd, 23rd

SCOTLAND

Festival of Britain 1951. *The Miniature Yacht Club of Glasgow* proposes to run an International Regatta to take place on four consecutive Saturdays in June, in conjunction with Glasgow Corporation Sports Carnival. The Regatta will be for four classes—A, 6m., M, 36 restr. for which the Corporation of Glasgow are providing a Silver Quaich for the first and second prizes, and the Club will also spend a considerable sum on prizes. Support from the English and Irish Clubs is desired. Application for entry forms to Club Secretary, J. M. McKenzie, 11, Haylynn Street, Glasgow, W.4.

MIDLANDS

Yachting Monthly Cup. It is understood that with a view to choice of a challenger from Great Britain for 1951, the first trial race of yachts selected from a number of clubs has taken place at Birmingham, Witton Lakes, and that the matter is being actively pursued by the M.Y.A. Special Selection Committee. The Birmingham M.Y.C. made first-class arrangements, including two lunches in the civic restaurant, which their guests much appreciated. A number of M.Y.A. officers, including the Chairman, Mr. A. W. Littlejohn, and Mr. Seabrooke, Racing Secretary, were present at this well attended assemblage.

NEW SECRETARIES

Birkenhead M.Y.C.—Mr. J. S. A. Bruce, 17, Claremont Avenue, Maghull, Nr. Liverpool.

Wicksteed M.Y.C. : Mr. G. S. THORNE, 8, Meeting Lane, Burton Latimer, Northants.

THE THAMES SHIPLOVER'S SOCIETY

At the monthly meeting on December 12th, Captain L. V. Henday of the Port of London Authority gave a very interesting lecture on the London River from Gravesend to the Docks, more particularly from the point of view of the Dockmaster. The pilotage, towing and docking of the ships was fully explained, and was found to involve problems and complications unrealised previously by most of the audience. The lecture was illustrated by about 100 pictures projected from a series of films in colour taken by Mr. H. R. Tilbury. These were superb examples of colour photography and were greatly appreciated and enjoyed by the large audience.

The monthly letter for January, 1951, just received contains, in addition to the full account of the November meeting, a special publication No. 3 on " Photographing Ships " by G. W. Howe. This deals very thoroughly with its subject and should be read and studied by the ship modeller as well as by the photographer.

The modelmaker's night for February will be held on February 8th, its subject being announced later. The meeting on February 22nd will be of special interest as Capt. Taprel Darling, D.S.O., F.R.Hist.S., R.N. (perhaps better known under his pen-name " Taffrail ") will be speaking on " Life in the Old Navy."

As a (very) preliminary announcement we may mention that a regatta for square-rigged and prototype ship models is being considered for next summer. The venue will probably be the Lagoon at Hove. The object of this early announcement is to give people time to prepare their models and to get them tuned-up ready for the regatta, if and when it is possible to arrange for it.

WEST LONDON M.P.B.C.

At the annual general meeting at the Leinster Hotel, W.2, on December 10th, 1950, Mr. R. Robinson was re-elected commodore. Mr. G. FIDLER, 27, Tavistock Avenue, Perivale, Middlesex, was elected secretary and treasurer, and Messrs. H. W. Smith, L. M. G. Smith and R. Andrews were elected to form a working committee.

COVENTRY MODEL YACHT CLUB

From the attractive " News Letter " for December, 1950, which the secretary has sent us, we may mention the following : The officers for 1951 are commodore, Mr. J. B. Quilliam, vice-commodore, Mr. T. C. Evans, secretary, MR. J. W. H. BAMFORD, racing secretary, Mr. J. F. Gaskell, treasurer, Mr. L. I. Barker, measurer, Mr. W. Smith, librarian, Mr. J. H. Shirley and committeemen, Mr. G. Sleddon and Master Tony Harrison.

It is hoped that full particulars of the new Library Scheme will be published in the January " News Letter."

HOVE & BRIGHTON M.Y.C.

Hove & Brighton M.Y.C. on October 15th had a very strenuous team match with Clapham M.Y.C. Fine weather, moderate breeze, veering S.E. to S.W. A mixed team of 4 Ms and 4 36s on each side. Result :

	M	*36 in.*	*Total*	*Leader*	*Skipper*	*Score*
Hove	117½	53½	171	" M " Doric	H. Charles	33
Clapham	42½	106½	149	36 in.	B. Peacock	38

Hove Lagoon has now been emptied for cleaning and repairs.

SOUTHEND M.Y.C.

During October this club held at Southend an interesting team match between a number of 6 metres (wee sixes) of the home club and " M " class models brought by that ambulant club, Southgate. The wind was strong and gusty from S.W. giving a beat and a run. The racing lasted 5½ hours, and resulted in a dead heat, 225 points each ! The Southgate " M "s were nearly all fitted with vanes, and did well on the lake which had been regarded as unsuitable for vanes. 20 boats started. Mr. Hatfield was O.O.D. Southend hope to have some " M " boats next year.

INTERNATIONAL RADIO CONTROLLED MODELS SOCIETY

The following are amongst the activities of the above society for February :

London Group : Sunday, February 11th, at 2 p.m., at the Horseshoe Hotel, Tottenham Court Road, London. General discussion on the 1951 " M.E. " Exhibition.

Birmingham Group : Saturday, February 3rd, at 2.30 p.m. in the History Class Room, University of Birmingham, Edmund Street, Birmingham.

Manchester Group : Saturday, February 17th, at 2.30 p.m., at the Milton Hall, Deansgate, Manchester. Jumble Sale.

A Swedish group of the society has now been formed, and an arrangement has been made with the Model Yacht Association of America.

"MODEL SHIPS AND POWER BOATS"
SALES AND WANTS

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The utmost care is taken to exclude announcements from doubtful sources, but we cannot accept responsibility or guarantee the good faith of advertisers.

WANTED. "Ships and Ship Models," the eight complete volumes and the eight numbers to volume nine, bound or unbound, but must be absolutely in printer's mint condition.—Box No. 96, MODEL SHIPS AND POWER BOATS Offices.

MODEL YACHTS. All classes built to order by experienced builder. Reasonable.—Box No. 97, MODEL SHIPS AND POWER BOATS Offices.

GLASS CASES FOR MODELS. S.A.E. for quotation.—E. MANT, Millhouse, Wigginton, Oxon.

TWELVE SUPER-DETAILED (100 ft. = 1 in.) Bassett-Lowke warships, £4, worth treble, photographs.—62, Eastern Avenue East, Romford.

Notices

The Editor invites correspondence and original contributions on all subjects connected with model ships and power boats, which should be addressed to him at 23, Great Queen Street, London, W.C.2. Matter intended for publication should be clearly written, and should always bear the sender's name and address.

All correspondence relating to sales of the paper should be addressed to THE SALES MANAGER and correspondence relating to display advertisements to THE ADVERTISEMENT MANAGER.

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